

PATENT SPECIFICATION

DRAWINGS ATTACHED

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974.115



Date of filing Complete Specification Nov. 19, 1962.

Application Date Dec. 15, 1961.

Complete Specification Published Nov. 4, 1964.

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974.115

No. 45070/61.

Index at acceptance:—F2 G24A1

International Classification:—F 06 I

GT. BRIT.
DIV. 350
C 287

COMPLETE SPECIFICATION

Device for Connecting Tubes or Tube-like Elements to One Another

5 We, CARR FASTENER COMPANY LIMITED, a British Company of Pinfold Lane, Stapleford, Nottinghamshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to a device for connecting tubes or tube-like elements to one another.

15 According to the present invention, a device for connecting two tubular-like elements to one another comprises a radially expansible tubular member formed of sheet metal and of such cross-section as to fit into the ends of the elements to be connected, parts of the wall of the tubular member being cut and bent to provide a first set of resilient tongues adjacent one end projecting outwardly of the peripheral surface of the member with their free ends directed towards the opposite end of the member, and a second set of resilient tongues adjacent the opposite end of the member and projecting outwardly of the said peripheral surface with their free ends directed towards said one end of the member, the arrangement being such that when the tubular-like elements are assembled by sliding over opposite ends of the member, the free ends of the tongues will resiliently and frictionally engage the inner wall of the elements to resist removal.

30 To enable the invention to be fully understood, it will now be described, by way of example, with reference to the drawings accompanying the Provisional Specification in which:—

40 Figure 1 is a perspective view of a tube connector according to one embodiment of the invention;

Figure 2 is a sectional view showing two

tubes connected to one another by the connecting device; and

Figure 3 is an exploded view of two tubes and a connecting device prior to assembly.

As illustrated in the said drawings, the connecting device is formed from a sheet of metal rolled into the shape of the hollow cylinder 1, the side edges 2 being spaced apart to leave a longitudinally extending slot so that the cylinder is resilient in that its wall is capable of inward and outward radial movement. Parts of the wall of the cylinder are cut and bent to form a first set of circumferentially spaced resilient tongues 3, adjacent to but spaced inwardly from one end with the free ends directed towards the opposite end of the cylinder, and a second set of circumferentially spaced resilient tongues 4 adjacent to but spaced inwardly from the opposite end with the free ends directed towards the first mentioned end of the cylinder.

Two further resilient tongues 5 and 6 are provided adjacent to opposite sides of the transverse centre line of the cylinder at each of the opposite sides of the slot defined by the edges 2, the free ends of the tongues 5 and 6 respectively facing towards said centre line and lying approximately on it.

The normal diameter of the cylinder 1 is slightly greater than the internal diameter of the tubes *a*, *b*, to be connected. In use, the wall of the cylinder 1 is compressed inwardly to reduce its effective diameter and the end of the tube *a* presented to one end of the cylinder and slid axially over it until the end of the tube abuts the free ends of the tongues 6. The tube *b* is then presented to the opposite end of the cylinder and slid axially over it until the end of the tube abuts the end of the previously assembled tube *a*.

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By virtue of the resiliency of the cylinder 1 and the tongues, the latter will be resiliently urged into frictional engagement with the inner walls of the tubes and as the free ends 5 of the tongues are all directed towards the abutting ends of the assembled tubes, the tongues will tend to resist any attempt to withdraw the tubes from the cylinder.

While the device has been described as 10 being of cylindrical form for connecting tubes of cylindrical cross-section, it will be understood that it can be made of other cross-sectional shape corresponding to that of the tubes to be connected.

15 As shown, the tongues 5 and 6, are staggered relatively to the tongues 3 and 4 respectively, but if necessary they may be in alignment.

WHAT WE CLAIM IS:—

20 1. A device for connecting two tubular-like elements to one another comprising a radially expansible tubular member formed of sheet metal and of such cross-section as to fit into the ends of the elements to be connected, parts 25 of the wall of the tubular member being cut and bent to provide a first set of resilient tongues adjacent one end projecting outwardly of the peripheral surface of the member with their free ends directed towards the opposite end of the member, and a second set of 30 resilient tongues adjacent the opposite end of the member and projecting outwardly of the said peripheral surface with their free

ends directed towards said one end of the member, the arrangement being such that 35 when the tubular-like elements are assembled by sliding over opposite ends of the member, the free ends of the tongues will resiliently and frictionally engage the inner wall of the elements to resist removal.

2. A device according to Claim 1, wherein 40 the expansible member comprises a cylindrical sleeve having a pair of spaced side edges defining a longitudinally extending slot.

3. A device according to Claim 2, wherein 45 the tongues of each set are circumferentially spaced around the peripheral surface of the member.

4. A device according to Claim 3, wherein 50 a further tongue is provided at the transverse centre line of the sleeve at each side of the longitudinally extending slot.

5. A device according to any one of Claims 2 to 4, wherein the sleeve is formed by rolling 55 a sheet of metal into tubular form with opposed side edges of the sheet spaced slightly apart to define the said slot.

6. A device for connecting two tubular-like 60 elements to one another substantially as described, with reference to the drawings accompanying the Provisional Specification.

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GB 0974115
NOV 1964

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1 SHEET

PROVISIONAL SPECIFICATION

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